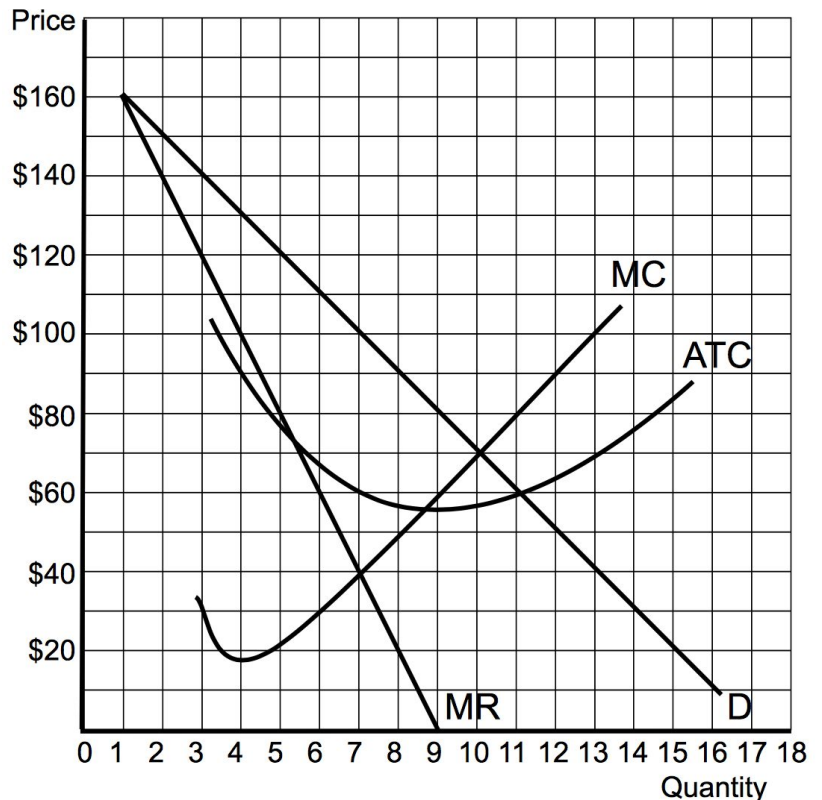




Microeconomics

Unit 4 Practice Sheet ([Video Help](#))

Part 1: Monopoly- Use the graph of a non-price discriminating monopoly to answer the following questions. Show your work when asked to calculate.



- Identify the profit maximizing price and quantity. $P = \$100$, $Q = 7$, where $MR = MC$ with price up to demand
- Calculate the total revenue at the profit maximizing price and quantity. $\$700 = \$100 \times 7 = P \times Q$
- Calculate the total cost at the profit maximizing price and quantity. $\$420 = \$60 \times 7 = ATC \times Q$
- Calculate the profit or loss at the profit maximizing price and quantity. $\$280 = \$700 - \$420 = TR - TC$
- Calculate the area of deadweight loss. $\$90 = \$60 \times 3/2$
- Identify the socially optimal (allocatively efficient) price and quantity. $P = \$70$, $Q = 10$, where demand = MC
- Identify the price and quantity where the total revenue is maximized. $P = \$80$, $Q = 9$, where MR hits zero.
- At the price of \$120, is the demand relatively elastic, relatively inelastic, or unit elastic? Why? **Elastic.** The MR is positive. If price falls, the total revenue will increase.
- Identify the price and quantity if this monopoly's fixed costs increase by \$140. $P = \$100$, $Q = 7$, The profit maximizing price and quantity will stay the same since the MC, MR, and Demand didn't change
- Identify the profit maximizing price and quantity if the government levies a \$30 per unit tax on this monopoly. $P = \$110$, $Q = 6$, The MC will shift upward by the vertical distance of \$30. The new $MR = MC$ is at 6 units.
- Identify the profit maximizing price and quantity if this monopoly figures out a way to perfectly price discriminate. $P =$ The monopoly will charge multiple prices from \$160 to \$70, $Q = 10$, where demand/MR = MC
- Assume instead that the costs of production changed for this monopoly so that the marginal cost (MC) and average total cost (ATC) for every unit was \$80. Under these new circumstances, identify the profit maximizing price and quantity. $P = \$120$, $Q = 5$, where $MR = MC$ with price up to demand
- Calculate the new total revenue at the profit maximizing price and quantity. $\$600 = \$120 \times 5 = P \times Q$
- Calculate the new total cost at the profit maximizing price and quantity. $\$400 = \$80 \times 5 = ATC \times Q$
- Calculate the new profit or loss at the profit maximizing price and quantity. $\$200 = \$600 - \$400 = TR - TC$

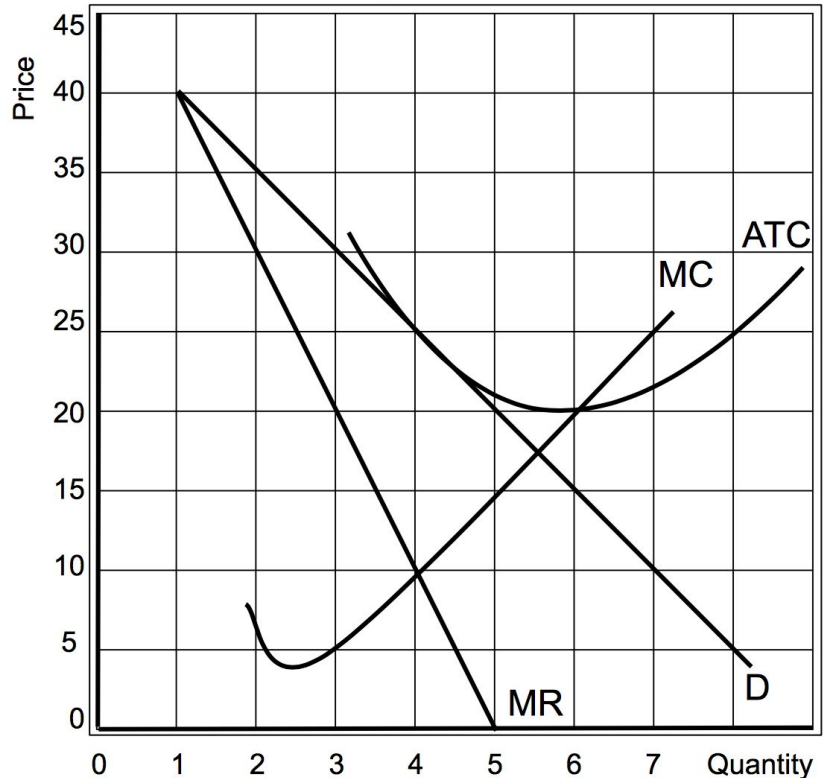


Microeconomics

Unit 4 Practice Sheet ([Video Help](#))

Part 2: Monopolistic Competition- Use the graph below to answer the following questions.

16. Identify the profit maximizing price and quantity. **P=\$25, Q=4, where MR=MC with price up to demand**
17. Calculate the total revenue at the profit maximizing price and quantity. **\$100 = \$25 X 4 = P x Q**
18. Calculate the profit or loss at the profit maximizing price and quantity. **Profit = \$0. P = ATC**
19. Will the number of firms in the industry increase, decrease, or stay the same in the long run? Explain. **Stay the same. The firm is in long-run equilibrium and is making no economic profit.**
20. Assume the demand decreased. Would profit increase, decrease, or stay the same in the long run? Explain. **In the long run, the profit will stay the same. Demand will decrease and firms will leave and demand will return to the same spot.**



21. Is this firm experiencing economies of scale at the profit maximizing quantity? Explain. **Yes, the average total cost (ATC) is falling at the profit maximizing quantity. This means that they can lower their average cost by producing more. They are experiencing economies of scale.**

Part 3: Oligopoly- Use the payoff matrix showing two movie studios, DS and MS, to answer the questions.

22. If both DS and MS make Rated R movies, how much profit will each firm earn? **DS earns \$50 and MS earns \$40**
23. Does DS have a dominant strategy? If so, what is it? **No, they do not have a dominant strategy**
24. Does MS have a dominant strategy? If so, what is it? **Yes. The dominant strategy is Rated PG-13 movies**
25. Given this information, is there a Nash equilibrium? If so, what will each firm decide to do? **Yes. DS will make Rated R movies and MS will make PG-13.**

		Morvel Studios (MS)	
		Rated R	Rated PG-13
Detective Studios (DS)	Rated R	\$50, \$40	\$70, \$80
	Rated PG-13	\$60, \$30	\$50, \$60

26. Assume instead that these firms decide to collude to maximize profit. What will each firm decide to do? **The same as above. DS will make Rated R movies and MS will make PG-13 movies.**



Microeconomics

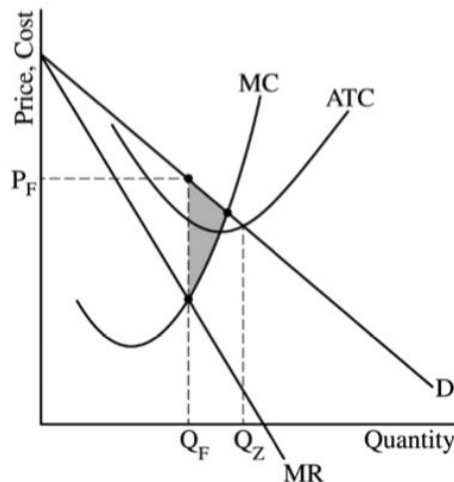
Unit 4 Practice Sheet ([Video Help](#))

Part 4- FRQ Practice- Complete the following question from the 2019 AP exam (Question 1).

9 points (5 + 2 + 2)

(a) 5 points

- One point is earned for drawing a correctly labeled graph of the monopoly showing downward-sloping demand (D) and marginal revenue (MR) curves with the MR curve below the demand curve.
- One point is earned for showing the profit-maximizing quantity, labeled Q_F , where $MR = MC$.
- One point is earned for showing the profit-maximizing price, labeled P_F , from the demand curve at Q_F , and above the average total cost curve (ATC).
- One point is earned for completely shading the area representing the deadweight loss.
- One point is earned for showing the quantity where economic profits are zero, labeled Q_Z , where ATC intersects the demand curve.



(b) 2 points

- One point is earned for stating the deadweight loss will remain unchanged, and for explaining that changes in fixed costs do not affect MC or do not change the profit-maximizing quantity of the firm.
- One point is earned for stating that FillUp's economic profit will decrease.

(c) 2 points

- One point is earned for stating that the price must be greater than AVC at the profit-maximizing level of output.
- One point is earned for stating that the profit-maximizing quantity and price will both decrease.